

AMENDMENTS TO THE CLAIMS

The listing below of the claims will replace all prior versions and listings of claims in the present application:

Listing of Claims:

Claims 1 through 43 (canceled)

Claim 44 (currently amended): ~~Method~~ A method for operating a gearbox (1a) ~~particularly in accordance with one of the claims 1 through 43, characterized by~~ transmission for a motor vehicle including a drive unit having a drive shaft and including a first electrical machine, wherein the transmission has multiple shafts including a first and a second transmission input shaft and at least one transmission output shaft, said method comprising the following steps of:

- ~~the drive unit drives~~ driving at least one of the two gear transmission input shafts (2a, 2b) ~~at least some of the~~ from the drive unit for a first period of time;
- ~~the first electric unit (10) drives~~ driving one of the gear transmission input shafts (2a, 2b) ~~at least some of the~~ from the first electrical machine for a second period of time; and
- driving the first electric unit (10) ~~is driven by~~ electrical machine from one of the gear transmission input shafts (2a, 2b) ~~at least some of the~~ for a third period of time.

Claims 45 through 82 (canceled)

Claim 83 (new): A method in accordance with claim 44, wherein the drive unit is an internal combustion engine with a drive shaft that can be connected with a transmission input shaft through respective first and second clutches, including the steps of:

- disengaging both clutches;

- disengaging gears between the first transmission input shaft, with which the first electrical machine is drivingly connected, and the transmission output shaft;

- engaging a gear having a low gear ratio between the second transmission input shaft and the transmission output shaft;

- driving the first transmission input shaft from the first electrical machine;

- engaging the first clutch between the first transmission input shaft and the drive shaft after the electrical machine reaches a rotational speed that is required for a cold start;

- after starting the internal combustion engine, engaging the second clutch between the drive shaft and the second transmission input shaft to move the vehicle.

Claim 84 (new): A method in accordance with claim 44, wherein the drive unit is an internal combustion engine with a drive shaft that can be connected with a transmission input shaft through respective first and second clutches, including the steps of:

disengaging both clutches;

disengaging gears between the first transmission input shaft, with which the first electrical machine is drivingly connected, and the transmission output shaft;

engaging a gear having a low gear ratio between the second transmission input shaft and the transmission output shaft;

engaging the first clutch between the first transmission input shaft and the drive shaft;

energizing the first electrical machine to start the drive unit; and

disengaging the first clutch and engaging the second clutch between the drive shaft and the second transmission input shaft to move the vehicle.

Claim 85 (new): A method in accordance with claim 44, including the steps of:

driving the first electrical machine by the drive unit for operating the electrical machine as a generator for producing electrical energy; and

engaging one of the two clutches in the power distribution flow between the drive shaft and a transmission input shaft.

Claim 86 (new): A method in accordance with claim 85, wherein the electrical machine is coupled to the drive unit as a function of the state of charge of an electric energy storage device.

Claim 87 (new): A method in accordance with claim 44, wherein the drive unit is an internal combustion engine with a drive shaft that can be connected with a transmission input shaft through respective first and second clutches, including the steps of:

transmitting torque from the drive shaft of the drive unit through an engaged clutch in the power distribution flow between the first transmission input shaft coupled with the electrical machine and the drive shaft to the first transmission input shaft and to a rotor shaft of the electrical machine;

transmitting torque from the drive shaft of the drive unit through an engaged clutch in the power distribution flow between the second transmission input shaft without an electrical machine through a pair of gears to the transmission output shaft and to the first transmission input shaft through a pair of gears to the rotor shaft of the electrical machine; and

transmitting torque from at least one driving wheel to the transmission output shaft and to the rotor shaft of the first electrical machine through a pair of gears through the first transmission input shaft.

Claim 88 (new): A method in accordance with claim 87, wherein the first electrical machine is operated at an r.p.m. at which the electrical machine operates at optimal efficiency.

Claim 89 (new): A method in accordance with claim 87, wherein the drive unit is uncoupled from the first transmission input shaft in a delayed manner

during an energy recuperation operation at a change from "pull" to "push" by engaging the clutch between the first transmission input shaft and the drive shaft.

Claim 90 (new): A method in accordance with claim 44, wherein the first electrical machine transfers torque in addition to that of the drive unit, through a transmission input shaft and a pair of engaged gears between that transmission input shaft and the transmission output shaft, to at least one driving wheel for driving the motor vehicle.

Claim 91 (new): A method in accordance with claim 44, wherein during shifting processes and for synchronizing purposes the first transmission input shaft is coupled with the first electrical machine to change the rotational speed of the first transmission input shaft during transmission of torque by the second transmission input shaft, by temporarily engaging the clutch between the drive unit and the first transmission input shaft.

Claim 92 (new): A method in accordance with claim 44, including performing the following shifting steps when shifting from one gear to a new gear with having a lower gear ratio on the same transmission input shaft:

increasing the power output of the drive unit;

slipping operation of the clutch in the power flow between the first transmission input shaft, on which gears that are to be shifted are arranged, and the drive shaft;

upon reaching synchronous speed on the clutch between the drive shaft and a second transmission input shaft with regard to a gear coupled with the first transmission input shaft between the gears that are to be shifted, operating the clutch in a slipping manner and directing torque to at least one driving wheel through the transmission output shaft by a gear coupled with the second transmission input shaft and the gears to be shifted;

engaging the clutch between the drive shaft and the second transmission input shaft; and

upon reaching the synchronous speed of the new gear that is to be engaged on the one transmission input shaft, shifting into that new gear.

Claim 93 (new): A method in accordance with claim 92, wherein during the shifting process from one gear to the new gear having a lower gear ratio on the same transmission input shaft that is connected with an electrical machine, the electrical machine is operated during the synchronization process for synchronizing the speed of the new gear.

Claim 94 (new): A method in accordance with claim 44, wherein for the purpose of synchronizing at least one new gear to be engaged, the electrical machine decelerates the transmission input shaft that is connected with it, while the vehicle is accelerated, through the transmission input shaft that is not connected with the electrical machine.

Claim 95 (new): A method in accordance with claim 94, wherein the electrical machine decelerates the transmission input shaft to the synchronous speed of the new gear that is to be engaged.

Claim 96 (new): A method in accordance with claim 44, wherein the electrical machine is coupled to a transmission input shaft through a clutch coupled with a gear having the highest gear ratio, including the following steps:

rotatably arranging on the transmission input shaft an idler coupled with of gear pair of the highest gear ratio gear and uncoupling the electrical machine from the transmission input shaft;

coupling the electrical machine to the transmission input shaft and rotating the idler relative to the transmission input shaft;

non-rotatably connecting the idler with the transmission input shaft and coupling the electrical machine with the transmission input shaft; and

coupling the electrical machine with the idler while the idler is rotatable relative to the transmission input shaft.

Claim 97 (new): A method in accordance with claim 44 for operating a motor vehicle with the first electrical machine, including the steps of: disengaging the clutch between the transmission input shaft to which the electrical machine can be coupled and the drive shaft; and transmitting torque from the electrical machine to at least one driving wheel through an active selected pair of gears between the transmission input shaft and the transmission output shaft.

Claim 98 (new): A method in accordance with claim 44 for supplementing output of the drive unit in the operation of the motor vehicle with power from the first electrical machine, wherein in a power flow from the drive shaft to the transmission output shaft via the transmission input shaft that can be coupled with the first electrical machine, the first electrical machine is coupled with the transmission input shaft, and wherein in a power distribution flow through the transmission input shaft that is not connected with the electrical machine, the clutch is disengaged from the electrical machine between the drive shaft and the transmission input shaft, and the torque that is supplied by the electrical machine is transferred to the transmission output shaft via a selected pair of gears as a function of the driving condition of the vehicle.

Claim 99 (new): A method in accordance with claim 44, for an engine starting procedure for an internal combustion engine wherein a sliding sleeve with three control settings that is arranged on a split transmission output shaft shifts to one of two gears arranged on different transmission input shafts and the transmission output shaft, including the following steps:

disengaging all gears between the first transmission input shaft that is operatively connected with the electrical machine, and the transmission output shaft;

connecting the idlers of the two gears with each other through a sliding sleeve;

engaging the clutch in the power flow between the second transmission input shaft and the drive shaft;

energizing the electrical machine to start the drive unit;

disengaging the clutch between the drive unit and the second transmission input shaft;

decelerating the second transmission input shaft to a negligible speed by the electrical machine;

moving the sliding sleeve having three control settings into a neutral position;

engaging a gear with a low gear ratio between the second transmission input shaft and the transmission output shaft;

engaging the clutch in the power flow between the drive shaft and the second transmission input shaft to cause the vehicle to move.

Claim 100 (new): A method in accordance with claim 44 for starting a cold internal combustion engine, including the following steps:

disengaging the clutch in the power flow between the transmission input shaft with which the electrical machine is connected, and the drive shaft;

disengaging all gears;

engaging the clutch in the power flow between the transmission input shaft with which the electrical machine is not operatively connected and the drive shaft;

drivingly connecting one idler of a gear of the transmission input shaft with which the electrical machine is operatively connected and one idler of a gear of the transmission input shaft with which the electrical machine is not operatively connected;

supplying the electrical machine with electrical power to start the internal combustion engine through a power branch including the electrical machine rotor, the transmission input shaft operatively connected with the electrical machine, a gear pair of a gear on the transmission input shaft with which the electrical machine is operatively connected, a gear pair of a gear on the transmission input shaft with which the electrical machine is not operatively connected, a clutch between the transmission input shaft with which the electrical machine is not operatively connected, and the drive shaft.

Claim 101 (new): A method in accordance with claim 44, wherein during a shift process from a first gear on a first transmission input shaft that is operatively connected with the electrical machine, to a second gear having a higher gear ratio than the first gear on a second transmission input shaft, transmitting torque to the electrical machine through a clutch between the drive shaft and the first transmission input shaft until the drive shaft substantially reaches a speed for jerk-free operation of the second gear.

Claim 102 (new): A method in accordance with claim 44, including the step of:

disengaging both clutches during vehicle movement and operatively connecting the at least one driving wheel with the electrical machine to drive the electrical machine as a generator for producing electrical energy by recuperation.

Claim 103 (new): A method in accordance with claim 88, wherein the first electrical machine is operated at an r.p.m. for optimal efficiency by selecting and engaging appropriate gear pairs between the transmission output shaft and the first transmission input shaft

Claim 104 (new): A method in accordance with claim 89, wherein the drive unit is uncoupled from the first transmission input shaft after more than 0.3 sec. after the change from "pull" to "push."

Claim 105 (new): A method in accordance with claim 90, wherein the first electrical machine transfers torque through a transmission input shaft and a pair of engaged gears between that transmission input shaft and the transmission output shaft to at least one driving wheel for driving the motor vehicle.

Claim 106 (new): A method in accordance with claim 94, wherein the new gear to be engaged is a gear with the lowest gear ratio on the transmission input shaft that is connected with an electrical machine.